

## REMARKS

Claims 1 – 9 are presented for reconsideration and further examination in view of the following remarks.

In the outstanding Office Action, the Examiner rejected claims 1 - 8 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,825,892 to Braudaway et al. and further in view of U.S. Patent No. 6,137,892 to Powell et al.

By this Amendment,

claims 1 - 8 have been amended to delete all occurrences of the terms “area,” “predetermined area,” “first area,” and “second area,” and to replace them with the terms --line--, --specified line--, and --adjacent line--, for example;

new claim 9 has been added to recite features that can be found in the specification at pages 13 and 14, for example.

Therefore, it is respectfully submitted that the above amendments do not introduce any new matter to this application within the meaning of 35 U.S.C. §132.

## Rejections Under 35 U.S.C. §103(a)

The Examiner rejected claims 1 – 8 as being unpatentable over Braudaway et al. in view of Powell et al.

## Response

Reconsideration and withdrawal of the rejection is respectfully requested.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success;

(3) that the prior art references teach or suggest all the claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

It is respectfully submitted that the combination of references fails to teach or suggest all the claim limitations.

The feature of independent claim 1, for example, resides in a digital watermarking apparatus comprising a specifying means; encryption data generating means; and mixing means. A method corresponding to the apparatus of claim 1 is recited in claim 3, which is similarly amended. A digital watermark reproducing apparatus or method for reversibly reproducing a digital watermark which is embedded in image data by the apparatus recited in claim 1 or according to the method recited in claim 3, is recited in claim 5 or 7 which are also amended to conform with amended claim 1 or 3. Claims 2 and 6 recite features regarding average calculating means, counter value calculating means, encryption data extracting means, and transforming means. Claims 4 and 8 recite a method corresponding to the apparatus of claims 2 and 6.

One feature of the independent claims of the present invention resides in that a certain line (the specified line) in a pixel data is specified and a digital watermark data is embedded in pixel data of a line adjacent the specified line by converting the intensity value or the color difference value of each pixel of the adjacent line. The degree of the above conversion is rather small because adjacent lines, especially those of natural image data, have spatially high correlation so that the quality of the image data does not deteriorate significantly even if a watermark is embedded. See for example, page 12, paragraph beginning on line 3.

Braudaway et al. discloses protecting images with an image watermark. Further disclosed is a method of imparting a watermark onto a digitized image in which a watermarking plane is imparted onto the digitized image by multiplying the brightness value or values of each pixel by its corresponding element value in the watermarking plane so that the resulting modified brightness values impart the random and relatively invisible watermark onto the digitized image. See Abstract.

However, Braudaway et al. fails to teach or suggest embedding a digital watermark in each line of image data by using the high correlation between adjacent lines.

In other words, there is no disclosure in the Braudaway et al. reference of a) "*transforming the intensity value or the color difference value of each pixel in the adjacent line such that a relation between the first counter value and the second counter value becomes a preset relation according to a first value or a second value of the encryption data from said encryption data generating means, and for outputting the received image signals as watermarked image signals*" as recited in independent claim 1 and its corresponding method claim 3; b) "*for extracting from the adjacent line the encryption data which is determined to be a first value or a second value according to a relation between the first counter value and the second counter value; and a decrypting means for decrypting the extracted the encryption data to an original watermark for output*" as recited in independent claim 5 and its corresponding method claim 7.

The Examiner cites Powell et al. in an attempt to cure the deficiencies of Braudaway et al. Powell et al. teaches data hiding based on neighborhood attributes, in which signature points, which are points in an original image where a signature is encoded, are selected by calculating a difference between an average of pixel values within a 3 X 3 pixel small neighborhood and an

average of pixel values within a 5 X 5 pixel large neighborhood. See column 4, paragraph beginning on line 22, for example.

In Powell et al., an averaging operation is performed in blocks as described above, which has such a disadvantage that the difference in value between blocks is rather inconspicuous. Particularly, the image quality becomes worse as the size of block becomes small such as 3 X 3, 5 X 5 because change in pixel value ranges over many pixels due to averaging operation. In other words, the averaging operation in blocks causes image quality deterioration such as a block distortion occurring in MPEG encoding.

In contrast, as described above, an operation for pixel values of adjacent lines which have high correlation is employed so that the quality of the image data does not deteriorate significantly even if a watermark is embedded. Therefore, Powell et al. fails to cure the deficiencies of Braudaway et al.

In view of the above, Applicants respectfully submit that the amended claims 1 - 8 and new independent claim 9 define over Braudaway et al. and Powell et al., taken either alone or in combination. Further, as the combination of references fail to teach or suggest all the limitations of claims 1 - 8 of the present invention, it is therefore respectively submitted that the rejection of claims 1 - 8 under 35 U.S.C. § 103(a) should be withdrawn.

## CONCLUSION

In light of the foregoing, Applicants submit that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants

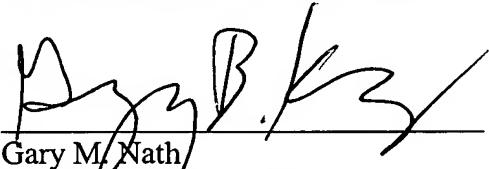
Appl. No. 10/046,909  
Art Unit: 2136  
Attorney Docket No. 24886  
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respectfully request that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

In the event this paper is not timely filed, Applicants petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,  
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